Optimization of Adsorption-DAF Hybrid Process for Water and Wastewater Treatments

양태훈, 정흥조, 곽동희, 이재욱*
서남대학교 환경화학공학부
(jwlee@seonam.ac.kr*)

A new hybrid system consisting of powdered activated carbon adsorption and dissolved air flotation (DAF) processes was studied for simultaneous removal of algae and the organics produced from algae (anabaena and mycrocystis). Before studying the hybrid system, adsorption equilibrium and kinetics of organics on powdered activated carbon (PAC) were investigated. Three types of powdered activated carbons (wood-based, coal-based, coconut-based) were chosen as an adsorbent, and 2-methylisoboneol (MIB) and geosmin were used as a representative organic compound produced from algae. It was found that simultaneous removal of algae and organics dissolved in water can be successfully achieved by using the hybrid system of adsorptiIton/DAF processes. In addition, optimization method of adsorption/DAF hybrid process was proposed for water and wastewater treatments.